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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/530,673 05/03/00 WONG

C DC4511

EXAMINER
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IM22/0424

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E I DU PONT DE NEMOURS & COMPANY  
LEGAL PATENTS  
WILMINGTON DE 19898

BAGWELL, M	
ART UNIT	PAPER NUMBER

1711

DATE MAILED:

04/24/01

*8*

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

**Office Action Summary**

Application No.

09/530,673

Applicant(s)

WONG, CHUN SING

Examiner

Melanie D. Bagwell

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 8-16 is/are rejected.
- 7) ☒ Claim(s) 2-7 and 17 is/are objected to.
- 8) ☐ Claims \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

1. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

### ***Claim Objections***

2. Claim 17 is objected to under 37 CFR 1.75(c) as being in improper form because a dependent claim cannot depend from two claims. See MPEP § 608.01(n).  
Accordingly, the claim 17 has not been further treated on the merits.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 13 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Regarding claim 13, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).
6. Claim 16 recites the limitation "the ethylene- $\alpha$ -olefin" in line 2. There is insufficient antecedent basis for this limitation in the claim. Claim 1, the claim from which claim 16 depends, describes two separate copolymers of ethylene and  $\alpha$ -olefins.

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For the purposes of this action, it is the examiner's position to treat "the ethylene- $\alpha$ -olefin" as the copolymer (a).

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

8. Claims 1, 9-10, and 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Toa Nenryo Kogyo K.K. Note: This reference (EP 0027375) can be found on the applicant's Form PTO-1449.

9. Claim 1 is drawn to a polymeric toughening agent comprising (a) an ethylene- $\alpha$ -olefin copolymer having a density of 0.880-0.930 g/cc and a melt index (MI) of 0.01-50 dg/min, (b) an ethylene- $\alpha$ -olefin massing polymer having a density of 0.850-0.880 g/cc and an MI of 0.01-50 dg/min, and (c) 0.05-5% by weight of a grafted units derived from an olefinic carboxylic acid or anhydride, where the ratio of (a) to (b) is 10:90-90:10.

Claim 9 is drawn to a polymeric composition comprising a toughening agent as described before and an olefinic or non-olefinic material. Claim 10 limits the amount of component (c) to 0.09-5% by weight of the toughening agent. Claim 13 is drawn to a fabricated material comprising a toughening agent, where the toughening agent

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comprises (a) from above, (b) from above, and (c) 0.05-5% by weight of a graft monomer. Claim 14 is drawn to a process for producing a polymeric composition by preparing the toughening agent of claim 1 and combining the toughening agent with either a polyamide or a different non-olefinic or olefinic material. Claim 15 limits the process to one not requiring the use of a partitioning agent.

10. Toa Nenryo Kogyo K.K. discloses a composition containing 75 parts ethylene/butene-1 copolymer and 25 parts ethylene/propylene rubber modified with 0.3 parts maleic anhydride (example 19, pp. 9-12). The ethylene/butene copolymer has a MI of 4.0 and a density of 0.89, while the ethylene/propylene rubber has a MI of 1:9 and a density of 0.88. The reference teaches the use of the blend with materials such as nylon 6 and nylon 66 (p. 8 lines 3-9) to make a laminate material (p. 8 lines 23-27), also teaching a method of combining the two materials by melting the polyolefin onto the polyamide. Furthermore, the method of the reference does not require a partitioning agent as claimed.

### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toa Nenryo Kogyo K.K.

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13. Claims 11-12 limit the non-olefinic material of claim 9.

14. Toa Nenryo Kogyo K.K. applies as above, lacking mention of the ratio of polyamide to polyolefin blend. Since varying amounts of the two components would yield different layer thicknesses and hence vary impact properties, it is the examiner's position that it would have been prima facie obvious to use any amounts of the materials necessary to create a laminate structure having optimal impact resistance.

15. Claim 8 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Toa Nenryo Kogyo K.K.

16. Claim 8 limits the toughening agent to a non-massing material.

17. Toa Nenryo Kogyo K.K. applies as above, lacking mention of the massing properties of the grafted polyolefin blend. It is the examiner's position that, because the reference discloses all the limitations of the claims except the massing properties of the polyolefin blend, the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render the claimed invention obvious.

Therefore, it is appropriate for the examiner to make a rejection under both the applicable section of 35 USC 102 and 35 USC 103 such that the burden is placed upon the applicant to provide clear evidence that the respective compositions do in fact differ.

In re Fitzgerald et al., 205 USPQ 594.

***Allowable Subject Matter***

18. Claims 2-7 and 16-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and also rewritten to overcome rejections based on 35 USC 112.

19. Claim 2 limits the toughening agent of claim 1 to comprise 0.9-5% by weight of component (c), claims 3-6 further limit the MI and density values of components (a) and (b) of claim 1, and claim 7 limits the materials useful as components (a)-(c). Claim 16 limits process of claim 14 by specifying reaction steps for grafting the polyolefin blend and combining the polyolefin blend with a polyamide.

20. Toa Nenryo Kogyo K.K. discloses a composition having the applicant's claimed polymer blend, each component having specific melt indices and densities. However, the reference does not disclose possible ranges for melt index and density values, nor does it disclose a range for useful amount of grafting monomer. The property values of the example of the reference do not fall within the applicant's claimed ranges (claims 3-6), and the reference also does not teach the specific blends of claim 7. The reference also does not teach the process for forming the polyolefin blends by cograftering a polyolefin blend. For these reasons, it is the examiner's position that the specific density ranges and grafting procedures used to form an impact modifier and impact modified material are novel and unobvious over the prior art.

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21. Other important references have been provided for the applicant's review. The filing date of the following references is insufficient to overcome the applicant's provisional filing date.

*Tanaka et al. (USPN 6,008,297)*

22. Tanaka discloses a polymeric composition including a mixture for improving the impact strength of polyamides comprising a polyamide (A), a modified ethylene- $\alpha$ -olefin (B), and an ethylenic copolymer (C), where (C) can be a modified ethylene- $\alpha$ -olefin copolymer (col. 1 line 62-col. 2 line 27). Tanaka teaches the ethylene- $\alpha$ -olefin copolymer of component (B) as having a preferred melt index of 0.1-20 g/10 min and a preferred density of 0.850-0.875 g/cc (col. 4 lines 18-28), also teaching ethylene- $\alpha$ -olefin copolymer of component (C) having a preferred melt index of 0.1-20 g/10 min and a preferred density of 0.900-0.940 g/10 min (col. 6 lines 10-27). The ratio of components (B) to (C) is preferably in the range of 10-0.1 (col. 8 lines 13-20), and the amount of acid/anhydride modifier used for (B) and (C) is 0.01-5 parts by weight of the components (col. 2 lines 3-24).

23. The reference teaches the use of LLDPE (col. 6 lines 43-46) as the preferred material for component (C), teaches the use of ethylene-propylene and ethylene- $\alpha$ -olefin-diene copolymers as possible materials for component (B) (col. 4 lines 39-59), and teaches maleic anhydride as a preferred grafting monomer (col. 5 lines 7-10). Tanaka discloses a composition comprising a polyamide blended with two ethylene- $\alpha$ -olefin copolymers. Preferred polyamides for use in the invention include nylon 6,6 and nylon 6 (col. 3 lines 61-64). The ratio of copolymers (B) and (C) to polyamide (A) is 2-



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80:98-20 (col. 1 line 65-col. 2 line 11), including the ranges claimed by the applicant.

Tanaka suggests uses for the formed resin composition such as automobile parts and electric devices (col. 10 lines 22-28), forming the compositions by melt-mixing components (B) and (C) before adding polyamide (A) (col. 9 lines 63-66).

*Thiruvengada et al. (USPN 6,077,906)*

24. Thiruvengada discloses an impact modifier composition for polyamides comprising ethylene-propylene (EP) or ethylene-propylene-diene monomer (EPDM) copolymers with high flow polyolefins such as linear low density polyethylene (LLDPE) or very low density polyethylene (VLDPE), where at least one of the compositions is maleated (col. 4 lines 12-16). This alone suggests a blend of EP or EPDM with LLDPE or VLDPE, where both copolymers are maleated. The reference teaches an amount of 0.3-2.0% by weight maleic anhydride to modify the copolymers (col. 6 lines 62-65), also teaching densities for LLDPE and VLDPE (col. 7 lines 1-13) within the applicant's claimed ranges for component (a). Examples show a blend of EPDM having a MI less than 0.1 g/10 min (col. 9 lines 33-38) with VLDPE having a MI of 35 and a density of 0.88 g/10 min, both of which are maleated (Table 3). The ratios of the components vary from 20-80:80-20.

25. Thiruvengada also teaches the copolymer blend mixed with polyamides such as nylon 6,6 and nylon 6 (col. 5 lines 30-47) as an impact modifier, where the nylon blend can be made by combining the copolymer blend with the polyamide in an amount of 15-35% by weight copolymer blend and 65-85% by weight polyamide (col. 7 lines 25-44).

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The modified nylon blends are used to form thermoplastic molded articles (col. 8 lines 38-44). Examples do not indicate the need for partitioning materials.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bagwell whose telephone number is (703)308-6539. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703)308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9310 for regular communications and (703)872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)872-9309.

mdb  
April 18, 2001

  
RACHEL GORR  
PRIMARY EXAMINER